

ECOSYSTEMS

In an ecosystem, abiotic components, such as oxygen, water, nutrients, light, and soil, support the life functions of biotic components, such as plants, animals, and micro-organisms. Biomes contain many different ecosystems. Ecosystems can be small, for example, a tide pool or a rotting log; or large, for example, a coastal Douglas fir forest or an entire biome.

Ecosystems contain different habitats. A **HABITAT** is the place in which an organism lives (its home). For example, a sculpin is a fish that makes its habitat between rocks at the bottom of a tide pool ecosystem.

Organisms within an ecosystem constantly interact to obtain resources, such as food, water, sunlight, or habitat. As a result of these interactions, organisms have special roles – or **NICHES** – in their ecosystems. An organism's niche includes the way in which it contributes to and fits into its environment (whether it is a herbivore or carnivore; its predator-prey relationships). Many different organisms can live in the same habitat if they occupy different niches.

Biotic interactions are structured from smallest to largest in an **ECOLOGICAL HIERARCHY**:

- A **SPECIES** is a group of closely related organisms that can reproduce with one another.
- All members of a species within an ecosystem are referred to as a **POPULATION**.
- Populations of different species that interact in a specific ecosystem form a **COMMUNITY**.

There are many different biotic interactions that occur in ecosystems. **SYMBIOSIS** refers to the interaction of two different organisms that live in close association. **COMMENSALISM**, **MUTUALISM**, and **PARASITISM** are types of symbiotic interactions. Other interactions include **COMPETITION**, **PREDATION**, and **MIMICRY**.